

**Tennessee Tech University
Curriculum & Instruction
ELED 4142 – Science for the Elementary Teacher**

Section A10 – Scott County
Wednesday 9:00-12:00
3 Credit Hours, Spring 2018 Semester

Instructor Information

Instructor: Dr. Leslie Suters
Office: RSCC-OR; H-215
Office Phone: 865-481-2000 Extension 2320
Email: lsuters@tnitech.edu

Office Hours

Schedule as needed

Conceptual Framework

The graduate of the teacher education program at TTU will be a competent, caring professional who can work effectively in a diverse, technological society.



Candidates will demonstrate:

- an appropriate level of scholarship,
- effective communication,
- a level of responsibility consistent with professional behavior,
- skills of reflection that promote self-evaluation and growth,
- respect for diversity, and
- skills of collaboration with other professionals, families, and community.

Conceptual Framework Statement

The **knowledge element** enables professionals to

1. use strong understanding of subject matter and general knowledge to enable students to learn and communicate effectively with others, and
2. use technological knowledge and collaborative techniques to foster active inquiry, problem solving, and performance skills among learners.

The **performance element** enables professionals to

1. understand and establish an effective learning environment that possess the skills, techniques, and strategies to do so, including those that provide opportunities for student intellectual, social, and personal development, and
2. use reflection continually and improve outcomes assessment, resulting in improved learning experiences.

The **disposition element** enables professionals to

1. create a climate of openness, inquiry, and support by practicing strategies that foster relationships of acceptance, appreciation, and value for diverse individuals and groups in the larger community, and
2. recognize ethical, professional standards and strive for continual personal improvement.

Course Information

Course description

Curricular content of elementary school science including materials and methods of developing skills in science for children

Required Texts

- [NSTA Learning Center](#) To purchase the class bundle Subscription
- [Our NSTA Class Landing Page](#)
- [Tennessee State Standards for Science](#)
- *A Framework for K-12 Science Education: Practices, Crosscutting Concepts, and Core Ideas* (2012). [Free Download](#)

Required Special Instructional Materials

3 Ring Binder

Recommended Memberships

National Science Teachers Association (NSTA): [Membership forms](#)
[Tennessee Science Teachers' Association](#) (TSTA)

Topics Covered

State and National Standards
Curriculum and Assessment
Preparation of Unit and Lesson Plans
Pedagogical Content Knowledge
Classroom Management Skills
Instructional Strategies

Differentiated Instruction
Formative Assessment
Constructivism & Inquiry-based learning
Resources
Professional Development

Licensure Standards

Objective 1	Demonstrate implementation of K-5 State Standards through planning engaging lessons, focusing on both content and process standards.
Standard	(TPE Standards 1, 2, 3, 4, 5, 6, 7, 8)
Assignment(s)	5E Lesson Plan, Inquiry Project, Engineering Design - Bottle Rockets, NSTA Learning Center SciPack, Library Makerspace Project
Assessment	Gradesheets provided
Praxis test/topic (if applicable)	ELED: CIA (Science Curriculum, Instruction, and Assessment); Content: (Science); PLT K-6 (Students as Learners, Instructional Process, Assessment, Analysis of Instruction Scenarios)

Objective 2	Become familiar with constructivism and scientific inquiry.
Standard	(TPE Standards 1, 2, 3, 4, 5, 6, 7, 8, 9)
Assignment(s)	Learning Log, 5E Lesson Plan, Inquiry Project, Engineering Design - Bottle Rockets, PLT/Wild Workshop & Assignment
Assessment	Gradesheets provided
Praxis test/topic (if applicable)	ELED: CIA (Science Curriculum, Instruction, and Assessment); Content: (Science); PLT K-6 (Students as Learners, Instructional Process, Assessment, Analysis of Instruction Scenarios)

Objective 3	Promote mutual respect in interpersonal and group relationships through science-related experiences.
Standard	(TPE Standards 2, 3, 4, 5, 6, 7)
Assignment(s)	5E Lesson Plan, Engineering Design - Bottle Rockets, PLT/Wild Workshop & Assignment, Library Makerspace Project
Assessment	Gradesheets provided
Praxis test/topic (if applicable)	PLT K-6 (Students as Learners, Instructional Process, Assessment, Analysis of Instruction Scenarios)

Objective 4	Develop science activities that are supportive of and engage the learners in an active, problem-solving, hands-on approach.
Standard	(TPE Standards 1, 2, 3, 4, 5, 6, 7, 8, 11a)
Assignment(s)	Learning Log, 5E Lesson Plan, Inquiry Project, Engineering Design - Bottle Rockets, PLT/Wild Workshop & Assignment, Library Makerspace Project
Assessment	Gradesheets provided
Praxis test/topic (if applicable)	ELED: CIA (Science Curriculum, Instruction, and Assessment); Content: (Science); PLT K-6 (Students as Learners, Instructional Process, Assessment, Analysis of Instruction Scenarios)

Objective 5	Develop a more positive attitude and disposition toward teaching science in the elementary grades.
Standard	(TPE Standards 1, 2, 3, 4, 5, 6, 7, 9)
Assignment(s)	Learning Log, 5E Lesson Plan, Inquiry Project, Engineering Design - Bottle Rockets, PLT/Wild Workshop & Assignment; NSTA Learning Center SciPack
Assessment	Gradesheets provided
Praxis test/topic (if applicable)	PLT K-6 (Students as Learners, Instructional Process, Assessment, Analysis of Instruction Scenarios)

Objective 6	Engage in reflection throughout the course and actively locate professional resources.
Standard	(TPE Standards 1, 7, 9)
Assignment(s)	Learning Log, 5E Lesson Plan, Inquiry Project, Engineering Design - Bottle Rockets; NSTA Learning Center SciPack
Assessment	Gradesheets provided
Praxis test/topic (if applicable)	ELED: CIA (Science Curriculum, Instruction, and Assessment); Content: (Science); PLT K-6 (Students as Learners, Instructional Process, Assessment, Analysis of Instruction Scenarios)

Objective 7	Address student common misconceptions in science through the use of formative and summative assessments.
Standard	(TPE Standards 1, 2, 3, 4, 6, 7, 8, 9, 11a)
Assignment(s)	Learning Log, 5E Lesson Plan, Inquiry Project, NSTA Learning Center SciPack
Assessment	Gradesheets provided
Praxis test/topic (if applicable)	ELED: CIA (Science Curriculum, Instruction, and Assessment); Content: (Science); PLT K-6 (Students as Learners, Instructional Process, Assessment, Analysis of Instruction Scenarios)

Objective 8	Demonstrate the use of materials, media, and technology in learning, teaching, and communicating science content.
Standard	(TPE Standards 1, 2, 3, 4, 5, 6, 7, 8, 11a)
Assignment(s)	5E Lesson Plan, Inquiry Project, Engineering Design - Bottle Rockets, NSTA Learning Center SciPack, Library Makerspace Project
Assessment	Gradesheets provided
Praxis test/topic (if applicable)	ELED: CIA (Science Curriculum, Instruction, and Assessment); PLT K-6 (Students as Learners, Instructional Process, Assessment, Analysis of Instruction Scenarios)

Objective 9	Modify instructional plans to meet the needs of all learners in an inclusive classroom.
Standard	(TPE Standards 1, 2, 3, 4, 5, 6, 7, 8, 9, 11a)
Assignment(s)	5E Lesson Plan, Inquiry Project, PLT/Wild Workshop & Assignment
Assessment	Gradesheets provided
Praxis test/topic (if applicable)	ELED: CIA (Science Curriculum, Instruction, and Assessment); Content: (Science); PLT K-6 (Students as Learners, Instructional Process, Assessment, Analysis of Instruction Scenarios)

Major Teaching Methods

Lecture, demonstration, discussion, reading assignments, written assignments, group and individual projects and presentations

Grading and Evaluation

Date Due	Assignments	Points Possible	Percentage of Grade
2/21	5E Lesson Plan	75	15%
2/7; 3/14 3/16	NSTA Learning Center SciPack & Final Assessment	75	15%
3/28	Engineering Design – Bottle Rockets	25	5%
4/3; 4/6	Project WILD & Project Learning Tree workshop	50	10%
4/4	Makerspace Inquiry Project	50	10%
4/18	Interactive Notebook	75	15%
4/11 & 4/18	Caryville Elementary School Makerspace Participation and Reflection	50	10%
4/25	Makerspace Formal Lesson Plan (shared with	50	10%

Date Due	Assignments	Points Possible	Percentage of Grade
	Technology class)		
	Disposition (Midterm=25; Final=25)	50	10%
	Total Points	500	100%

A= 93 to 100% or 465-500 points

B= 85 to 92% or 425-464

C= 77 to 84% or 385-424

D= 69 to 76% or 345-384

F= 68% or below or 344 or below

Technology Access

Tk20 at TTU

TTU's College of Education has purchased Tk20, a comprehensive data and reporting system that will improve our processes, manage candidate transition points, and track key assessments in program coursework. All College of Ed students are required to purchase and maintain a Tk20 account. The one-time-only system cost is \$133.33 at the university bookstore, and your account is valid for seven years. You will be asked to access Tk20 for a variety of tasks, including coursework, advisement, clinical experiences including Residency, portfolio-building and edTPA tasks, and key program assessments. We are excited about the possibilities Tk20 will provide and the positive effects on your educational experience at TTU. Phase 1 of implementation begins in Spring 2013. Check your syllabi and consult with your instructors for assessments that must be submitted to Tk20. By Fall 2013, all professional education courses will include assessments within Tk20. [Access Tk20](#).

TTU Library Online Access

The Tennessee Tech Library is available to all candidates enrolled at TTU. Links to the library materials (such as electronic journals, databases, interlibrary loans, digital reserves, dictionaries, encyclopedias, maps, and librarian support) and Internet resources are available to complete assignments. To access the online databases, use your TTU PC Lab username and password. [For assistance with your campus username and password](#) visit the ITS web site or call the [myTech Helpdesk](#) (931-372-3975) for more information.

More information on electronic media is available at the [TTU Library](#).

Course Policies

Attendance Policy

Due to the amount of content covered, students are required to attend each class. If a situation arises which requires you to be absent, you should notify your

professor immediately. You will be expected to email or post any work that is due on the date of your absence. *It is your responsibility to schedule an appointment with the instructor in order to plan make-up work if you have an excused absence.*

Note: All absences should be supported with documentation presented to your professor upon your return to class. Please be advised that according to TTU Policy more than 3 absences can result in course failure.

Disposition Grade

Ten percent of your course grade will be determined by your educational dispositions, which include the following:

Attendance; Tardies (includes late arrival and leaving early); Collaboration; Communication; Scholarship; Respect; Responsibility; Reflection

Cell phones should be turned off or on vibrate and not used during class. Only exceptions will be the use of the phone as a calculator, stopwatch, or other application for in-class work.

Assignment Policy

Assignments are due as described on the assignment calendar. Late assignments will not be accepted unless there are extenuating circumstances, which will be determined on a case-by-case basis. If the instructor deems it appropriate and agrees to accept a late assignment, the student will incur a late penalty of 20% of the final grade for each day it is late (including Saturday and Sunday).

Important Note: You may be asked to revise an assignment in order to help you better learn the material. The final grade for the revised assignment will be an average of the original grade and the grade earned for the revised work.

Copyright and Fair Use

All projects created in this course should follow appropriate [copyright and fair use guidelines](#).

Please note: TTU personnel may display your work created during the scope of this course during accreditation, conference presentations, workshops, and/or future classes.

TTU Office of Disability Service

Students with a disability requiring accommodations should contact the Office of Disability Services (ODS). An Accommodation Request (AR) should be completed as soon as possible, preferably by the end of the first week of the course. The ODS is located in the Roaden University Center, Room 112; phone 372-6119. For details, view the Tennessee Tech's Policy 340 – [Services for Students with Disabilities at Policy Central](#).

Pandemic Plan

Should normal classroom activities at your placement be disrupted by a pandemic outbreak, the format for this course may be modified to enable completion. In that event, new instructions for the continuation of the course will be provided (Source: TTU University Faculty Meeting, August 25, 2009).

Student Academic Misconduct Policy

Maintaining high standards of academic integrity in every class at Tennessee Tech is critical to the reputation of Tennessee Tech, its students, alumni, and the employers of Tennessee Tech graduates. The Student Academic Misconduct Policy describes the definitions of academic misconduct and policies and procedures for addressing Academic Misconduct at Tennessee Tech. For details, view the Tennessee Tech's Policy 217 – [Student Academic Misconduct at Policy Central](#).

The instructor reserves the right to adjust this syllabus with appropriate notice to students.